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ABSTRACT

This paper reports on a study designed to identify the relationships among the context variables of sense of efficacy, teacher empowerment, and school climate as perceived by 1,802 Kansas City (Missouri) teachers. Factors related to teacher sense of efficacy (teaching efficacy and personal efficacy), to teacher empowerment, defined as the perceived influence of teachers in important decision-making activities, and to school instructional climate and school atmosphere, which include lack of impediments to effective learning and degree of teacher/staff collegiality, were examined. The study also attempted to identify differences in the strength of the relationships across grade levels, to examine the notion of stability of efficacy, and to delineate the extent of the relationship between the three context variables and student achievement (grades one through five). Findings included indications that: (1) efficacy, empowerment, and instructional climate factors differ significantly across schools, levels, and grades; (2) personal and teaching efficacy were highly, although inversely, related; (3) school atmosphere tended to be related to lack of impediments to effective instruction and collegiality among teachers; (4) efficacy was strongly related to both classroom and school decision making; and (5) the contribution of the context variables to achievement differed across levels, grades, and test content. (About half of the document consists of figures and tables.) (IAH)

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Teacher Efficacy, Empowerment, and a Focused Instructional Climate: Does Student Achievement Benefit?

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Teacher Efficacy, Empowerment, and a Focused Instructional Climate: Does Student Achievement Benefit?

Sweeping efforts at educational reform have been undertaken since the 1983 publication of *A Nation at Risk*. Both in theory and in application, the most recent era of reform has espoused goals of creating an innovative, enfranchised, and better trained teaching corps. Restructuring, as the latest educational reform movement is called, suggests a re-conceptualization of the teacher's role in the educational enterprise and has led many local education agencies (LEA) to institute policies and practices assuring greater teacher involvement in district- and building-level decision-making and policy creation. It has been claimed that restructuring will bring teachers opportunities that instill a renewed sense of professionalism through increased involvement in district- and school-based decision-making, refocusing the school toward greater teacher collaboration, and stimulating the development of innovative curricular and instructional strategies. It is theorized that *if* these events occur teachers will manifest a stronger sense of efficacy. Consequently, as Ruscoe, Gaus, and Esselman (1992) note, if efficacy [an expected goal of many restructuring efforts] is a policy-relevant issue, then reform of this kind *should* benefit student learning and achievement outcomes through alterations in teacher behavior in the classroom.

Ruscoe et al. (1992) provide clarity towards understanding the many conceptual and methodological issues inherent in efficacy research. Ruscoe et al. (1992) note that efficacy research has not proven to be particularly useful in policy creation and reform efforts. The lack of direct causal evidence of impact on student outcomes can be explained through the utilization of multiple definitions (Ashton &

Webb, 1986; Rotter, 1966; Bandura, 1977) and measurement conceptualizations of teacher efficacy (Berman, McLaughlin, Bass, Pauly and Zellman, 1977; Hillman, 1984). However, even with conceptual difficulties, researchers have reported significant relationships among sense of efficacy, involvement in decision-making, school climate, and student achievement outcomes.

The link between achievement and teacher beliefs and practices has been documented for a variety of outcomes and constructs (Ashton, 1985; Denham & Michael, 1981; Hillman, 1984; Schneider, 1986). Schneider (1986), in a study of the quality of education received by students in four urban elementary schools, found differences in student achievement gains effected by teacher, school, and community characteristics. Hillman (1984) in a study of the effects of teacher, student, and principal self-efficacy examined ten high and ten low achieving schools (35 teachers) and found that teacher expectations had a large effect on achievement (β= .809). Alternately, she found sense of teacher efficacy to have a small effect (β= .005) on achievement.

Others (Armor, Conroy-Osequera, Cox, King, McDonnel, Pascal, Pauley, & Zellman, 1976; Ashton and Webb, 1982; Brookover, Schweitzer, Schneider, Beady, Flood, & Wisenbaker, 1978; Brophy & Evertson, 1977; Gibson & Dembo, 1984) have noted a stronger link between teacher sense of efficacy (or similarly defined constructs), teacher classroom behaviors, and achievement, although the nature and extent of these relationships have yet to be fully understood.

Still others have found evidence for a relationship between the degree of teacher participation in classroom-level and building-level decision-making and achievement (i.e., empowerment) (Hornstein, Callahan, Fisch, & Benedict, 1968).

Similarly, norms of collegiality have been identified in more successful, by achievement standards, schools (Little, 1982).

RESEARCH ASSUMPTIONS AND DEFINITIONS

While there are many different orientations regarding efficacy, the current study began with Rotter's (1966) conceptualization of efficacy. However, the extent of this reliance was minimal after an examination of the efficacy literature. Using two central questions of efficacy developed by Berman et al. (1977) and apparently related to Rotter's locus-of-control, the investigators defined efficacy in line with the views of Ashton (1985) who has adopted the Bandura (1977) conceptualization.

The Rotter view of efficacy is based on the notion of locus-of-control in which the individual perceives important outcomes to be the result of personal behavior or effort (internal) or the result of forces or events outside the control of the individual (external). While this conceptualization creates the impression of a "one-or-the-other" attitudinal position, the current investigators treat efficacy as two interactive dimensions, each potentially present and operating concurrently to give meaning to the individual about the educational enterprise and the performance of students.

Similarly, Bandura noted that individuals, based on experience, develop "generalized expectancies" about behavioral contingencies. Further, individuals develop specific beliefs about their own personal effectiveness and ability (self-efficacy). Efficacy, within the context of this study, was defined as *a relatively fluid or context-specific belief in the ability of an individual or individuals to affect positive learning changes in students.* Following the same reasoning as Ashton (1985), the current study further refines Rotter's (1966) locus-of-control

conceptualization and Bandura's (1977) orientation to provide greater clarity of efficacy. As Ashton (1985) notes, internal locus-of-control can be thought of as "personal efficacy", or the teachers' *personal* sense of effectiveness (or as Bandura would say "self-efficacy"). External locus-of-control is thought of as "teaching efficacy". Teaching efficacy reflects beliefs about teaching and teachers *as a group* to affect positive learning in the face of external forces (for Bandura, outcome expectancy). As such, a greater sense of teaching efficacy, as used in the current study would denote a belief that teacher colleagues, and teaching in general, can overcome the external forces of home environment and student background to induce positive student outcomes. As Bandura (1977) believed, behavior is based on both outcome expectancy and self-efficacy. "Behavior is enacted when people not only expect certain behaviors to produce desirable outcomes (outcome expectancy), but they also believe in their own ability to perform the behaviors (self-efficacy)" (Riggs & Enochs, 1989). Consequently, it is quite possible and expected that many teachers would express a range of possible attitudes about the effectiveness of the teaching profession and about the effectiveness of their own efforts.

Teacher empowerment, was defined in this study to refer to the perceived influence of teachers in important decision-making activities. It was hypothesized that two separate dimensions of empowerment, as defined, would be measurable: classroom-based and school-based decision-making influence. The critical aspect of empowerment is the perception of influence. While teachers may not have the authority to make decisions regarding school or even classroom issues, the perception that they can influence or have input into decisions is of importance.

Lastly, the instructional climate of the school was defined by three hypothesized dimensions: the atmosphere of the school in terms of safety, physical

surroundings, cooperation, and positive feelings within the school; the lack of impediments to effective learning; and the degree of teacher/staff collegiality.

OBJECTIVES OF INQUIRY

The current study was conducted to identify the relationships among sense of efficacy, teacher empowerment, and school instructional climate. Further, because the literature suggested differences among elementary, middle, and high school teachers, in terms of efficacy and influence, (Ruscoe, Whitford, Egginton, & Esselman, 1989) this study attempted to identify differences in the strength of these relationships across grade levels. Additionally, to examine the notion of stability of efficacy (i.e., is efficacy a personality trait or a context-specific generalized contingency behavior) a sample of schools were examined twice (with five months intervening). Lastly, in order to delineate the extent of the relationship between these context variables and student achievement, grade level (first through fifth) reading and math achievement were examined by higher and lower levels of reported efficacy, empowerment, and perceived degree of instructional climate.

LIMITATIONS

As a result of current efforts to assess the effectiveness of the desegregation remedy in the school district examined, there has been great interest in examining school-level context and organizational variables. As such, the current study has focused upon school-level generalizations of teaching staff attitudes of efficacy, perceptions of empowerment, and instructional climate. In addition, in order to assure teacher confidentiality of responses, teachers were not asked to identify their position or grade level taught within the school. This was considered a necessary

methodological action to assure teacher participation. Furthermore, in order to examine relationships between these context variables and student achievement, achievement scores have been examined at grade levels within schools.

METHODS AND DATA SOURCES

A unique and largely unexamined educational setting was the source of data for the current study. Teachers and students of the Kansas City, Missouri school district provided data for this effort. Briefly, the school district has been, and currently is, engaged in one of the largest court-ordered desegregation/magnet school efforts in the United States. Concurrently, given the substantial level of state funding, there has been increasing interest in school-level reform initiatives designed to facilitate or directly impact student outcomes, namely norm-referenced achievement test performance.

Achievement scores on the Iowa Tests of Basic Skills (ITBS) for the 1990-91 test year were collected from district Evaluation Office computer files. Reading and mathematics achievement scores (i.e., median grade equivalent scores) were aggregated to school and grade levels for elementary schools. Due to time and resource limitations, achievement analyses were not conducted for middle or senior high schools.

Teacher data were gathered through a questionnaire instrument distributed to all elementary, middle, and high school teachers in the district in the spring of 1991. The instrument, containing 66 closed-ended items, was returned by 1,802 teachers.

Relying on the work of Ruscoe, et al., (1989), the current study utilized new as well as previously assembled questionnaire items identified with particular context variables (i.e., efficacy, empowerment, and instructional climate).

The analytic procedures followed the following steps: reduce the data to significant manipulable factors measuring dimensions of the three context variables; calculate standardized factor scores for each respondent for the seven factors and aggregate the factor scores to the school-level; examine the relationships between the seven factors across levels (elementary, middle, and senior high) and within levels; examine the relationships between the seven factors, respondent demographic information (gender, years teaching experience, level taught, and educational training), and school demographic information (magnet or traditional elementary school; and mean years of teaching experience of staff); and to examine student achievement differences across higher and lower levels of the context variables.

The regression approach to deriving factor scores standardizes each factor with a mean of 0 and a standard deviation of 1. As such, negative factor scores are possible. In order to facilitate ease of interpretation, each respondent's factor scores were transformed to T scores (mean=50; s=10) thus minimizing the potential for negative values. These factor scores, derived and standardized with the inclusion of all subjects, were then the basis for analytic comparisons.

Additionally, factor scores aggregated to the school-level were categorized into higher and lower scoring schools using the median score as the arbitrary break point for analyses of achievement differences. While losing some of the power of continuous variables, categorical groupings were undertaken to facilitate school comparisons in which the possession of more of a context variable was considered a useful piece of information. Achievement differences were only examined for elementary schools. Factors of interest (context variable, magnet/non-magnet school status, grade level, and test content) were examined with multivariate analysis of

covariance procedures with SES, percent non-minority enrollment, and prior achievement as covariates.

RESULTS

Data Reduction and Definition

Through an oblique (OBLIMIN) factor analytic rotated solution (SPSS-X, FACTOR) 66 questionnaire items were found to be associated with seven context variable dimensions. Subsets of items previously hypothesized to be measuring efficacy, empowerment, and instructional climate were factor analyzed separately each relying on the same oblique rotation procedure. Using a scree plot and selecting factors with eigen values greater than 1.0, the results of the three factor analysis procedures suggested the following factors, with the percent of variance accounted for in parentheses:

EFFICACY I: Teaching efficacy	(33.0%)
EFFICACY II: Personal efficacy	(11.7%)
Total variance accounted for by two factors	**(44.7%)**
EMPOWERMENT I: School decision-making influence	(39.6%)
EMPOWERMENT II: Classroom decision-making influence	(11.9%)
Total variance accounted for by two factors	**(51.5%)**
CLIMATE I: School's atmosphere	(40.5%)
CLIMATE II: Lack of impediments to effective learning	(8.9%)
CLIMATE III: Teacher collegiality	(7.9%)
Total variance accounted for by three factors	**(57.3%)**

Tables 1-3 display the derived factors, correlations among factors, associated items and factor/item loadings. As can be seen in Table 1, when efficacy dimensions are allowed to be correlated, Bandura's (1977) conceptualization of two interrelated aspects (outcome expectancy and self-efficacy) necessary for behavior is supported ($r_{12} = .40$). Certainly, the underlying construct of efficacy, in this

study, is dominated by the teaching efficacy or outcome expectancy dimension which was found to account for more than 30% of the efficacy construct.

Teacher empowerment, defined in this study to refer to the perceived influence of teachers in important decision-making activities, was found to be dominated by influence in school-based decisions (i.e., 40% of the variance of empowerment was accounted for by this factor). Teachers appear to perceive greater empowerment when their influence is directed beyond the classroom into the realm of school-wide decisions.

Insert Tables 1, 2, & 3 about here

Lastly, the instructional climate of the school was found to have three significant dimensions, as expected. Climate was dominated by school atmosphere which accounted for more than 40% of the variance. The lack of impediments to effective learning and teacher collegiality, while important, only accounted for a total of 17% of the variance of climate.

As such, the 66-item instrument was reduced to three context variables with seven important dimensions. For each of the three context variables, approximately 50% of the variance was accounted for by the derived factors.

Relationships and Differences for Context Variables

Relationships. Correlations, based on 1,802 respondents indicated significant relationships among efficacy, empowerment, and instructional climate standardized factor scores (see Table 4).

Efficacy. Initially, the most interesting relationships were found for teaching and personal efficacy ($r_{xy} = -.40$; $p \leq .01$). The correlations suggests that teachers,

Insert Table 4 about here

across all levels, have an inverse relationship between their own personal efficacy and that of their profession. Additionally, a stronger sense of personal efficacy was significantly related to greater influence in school-based decision-making (r_{xy} = .12; $p \leq .01$) and a positive school atmosphere (r_{xy} = .20; $p \leq .01$). These two significant relationships were found to be stronger at the high school and elementary school levels. A stronger sense of teaching efficacy was found to be related to greater staff collegiality but was unrelated to whether the teacher perceived impediments to effective learning

An unexpected relationship was found for efficacy and influence in decision-making. Teachers who reported a stronger sense of personal efficacy tended to report greater influence in school-based decision-making. The relationship with classroom-based decision-making was non-significant. Furthermore, while non-significant for most comparisons, high school teachers with a greater sense of teaching efficacy tended to have lower influence in school-based decisions. Alternately, teachers reporting a greater sense of teaching efficacy also tended to report having had greater involvement in classroom-based decisions.

Influence. In addition to the relationships noted above, a strong, significant inverse relationship was found for involvement in school and classroom decision-making (r_{xy} = -.45; $p \leq .01$). This relationship suggests that as teachers perceive themselves to have influence in one decision-making arena, they perceive much less influence in the other (see Table 4). Furthermore, there is some evidence that influence in school-based decisions is related to greater collegiality among teachers.

Most importantly, teachers who reported greater influence in school-based decisions tended to report a more positive perception of the school atmosphere. A similar relationship was found for classroom-based influence and school atmosphere.

Instructional climate. The three instructional climate factors were found to be significantly related (see Table 4). A positive school atmosphere was related to lack of impediments to effective instruction and collegiality among teaching staff. Unexpectedly, a significant inverse relationship was found for lack of impediments and collegiality ($r_{xy} = -.11$; $p \leq .01$) logically suggesting that as teachers perceive greater impediments to effective instruction they also tend to band together in more collegial relationships. Additionally, the expected relationship between collegiality and personal efficacy was not found. This may suggest that to enhance personal efficacy, reform strategies focusing on providing greater collegial interaction will not accomplish this result. Alternately, providing greater involvement in decision-making may provide a reform avenue toward enhancing personal and teaching efficacy. Lastly, it is valuable to note that a positive school atmosphere was significantly related to each other factor examined in the study, suggesting that an important element of the character of the school as perceived by teachers has some potential for suggesting changes in teacher attitudes and practices.

Differences between teachers based on demographics. Using a multivariate analysis of covariance procedure (MANCOVA), controlling for type of school (magnet and traditional) teacher background variables were examined for the seven context variables. A single MANCOVA tested gender (SEX: coded 1=male, 2=female); level taught (LEVEL: coded 1=prek-kindergarten, 2=grade 1-2, 3=grade 3-5, 4=6-8, 5=9-12); years of teaching experience (TEXP: coded 1=1 year or less, 2= 2 to 5 years, 3= 6 to 9 years, 4= 10 to 14 years, 5= 15 years or more); and

educational attainment (EDBACK: coded 1= less than Bachelors, 2= Bachelors, 3= Masters, 4= Masters plus 15 hours; 5= greater than Masters plus 15 hours). Additionally, unadjusted standardized factor scores reported by level of school assignment (elementary, middle, and high school) can be found in Figures 1-3.

Insert Figures 1, 2, and 3 about here

The four-way interaction was found non-significant (Hotellings $T_{98,9802}$=.05919; F=.84569; p = .859). Each three-way and two-way interaction term was non-significant as well (see Table 5).

Insert Table 5 about here

The MANCOVA procedure found a significant main effect for educational attainment (EDBACK: $T_{28,5602}$=.03453; F=.1.73; $p \leq .01$). An examination of the univariate F-tests (see Table 6) indicated that educational attainment was a significant factor for personal efficacy (F=3.23; $p \leq .012$) and school atmosphere (F=2.61; $p \leq .034$). The adjusted means indicated that staff members with less than a Bachelors degree tended to have the highest mean factor scores for both personal efficacy and perceptions of a positive school atmosphere (see Table 6). Alternately, those staff members with the most completed education tended to have the lowest mean factor scores for both personal efficacy and perceptions of a positive school atmosphere. Each of the other multivariate main effects were found to be non-significant (see Table 5).

Insert Table 6 about here

Differences between magnet school and traditional school teachers. Approximately 500 teachers work in non-magnet settings within the district examined. These teachers, across 20 different traditional elementary schools, existing outside the magnet school system were hypothesized to have different perceptions and experiences when compared to magnet school teachers.

Using analysis of covariance procedures efficacy, empowerment, and instructional climate factor scores were examined for differences between magnet and traditional school teachers while controlling for ID (elementary, middle, or high school assignment) and gender. The results indicated a significant effect for sense of teaching efficacy ($F_{1,1778} = 4.201$; $p \leq .041$) with magnet school teachers reporting a lower sense of teaching efficacy (see Table 7 and Figure 4). When personal efficacy scores were examined non-significant differences were found between magnet and traditional school teachers ($F_{1,1778} = 1.29$; $p = .26$). Similarly, non-significant differences were found for the two empowerment factors (school decision-making influence: $F_{1,1778} = 125$; $p = .724$; classroom decision-making influence: $F_{1,1778} = 3.22$; $p = .07$).

Insert Table 7 about here

Additionally, instructional climate factors did not differ for magnet and traditional school teachers when school atmosphere was examined ($F_{1,1778} = .077$; $p = .78$)

nor when lack of impediments to effective learning was examined ($F_{1,1778} = 024$; p = .88) Alternately, collegiality among teachers was found to differ significantly across magnet and traditional school teachers ($F_{1,1778} = 8.55$; $p \leq .003$). The means indicated that traditional school teachers felt a greater sense of collegiality in their schools.

Insert Figure 4 about here

Stability of Efficacy Attitudes

A sample of seven magnet elementary schools were examined for stability of efficacy attitudes across time. While the procedure would have had more power if individuals could have been identified and matched for comparison, protecting the confidentiality of respondents precluded matching individuals across time. As such, the stability of factor scores for school staff as a group were examined. Changes in staff assignment across the two administrations varied by less than 5% within each school.

The initial measurement of attitudes occurred in the spring of 1990-91. In the fall of 1991-92, approximately 5 months later, teachers were contacted to respond to a shorter version of the same instrument. The spring and fall school means and changes are reported in Table 8.

The results of dependent means t-tests suggest that across the seven schools, the difference between spring and fall *teaching efficacy* standardized factor scores (d=.197) was non-significant ($t_{1,6} = .154$; p = .883). Similarly, the results for the stability of *personal efficacy* factor scores indicate that the change between spring and fall was non-significant ($t_{1,6} = .2.253$; p = .0651). Clearly, the stability of

personal efficacy was less than that for teaching efficacy, although both constructs appear stable for these seven school's teaching staff.

Insert Table 8 about here

Achievement Differences

A multivariate analysis of covariance procedure examined first through fifth grade Iowa Tests of Basic Skills (ITBS) reading and mathematics grade equivalent scores for the effect of degree of efficacy, empowerment, and instructional climate. Achievement differences were examined for elementary schools with higher and lower teacher reported sense of efficacy, empowerment, and instructional climate.

Using distributions of factor scores with the median factor score identified, the investigators grouped schools into above median and below median groups for efficacy, empowerment, and instructional climate. Additionally, magnet and traditional school assignment was included as a factor. The procedure controlled for school socioeconomic status (SES) based on the percent of students having received free or reduced lunches. Prior achievement, as a proxi ability measure was not included as a covariate. Analysis of variance procedures indicated non- significant prior achievement differences by context variable and magnet-traditional school.

Reading achievement. Non-significant differences were found for reading at grades 1 through 5 for the interaction between teaching efficacy levels and magnet - traditional and for the two main effects. Similarly, when achievement differences were examined for levels of personal efficacy and magnet-traditional schools, non-significant differences were found for both the interaction and the main effects.

Differences in reading achievement performance between magnet and traditional schools with higher and lower empowerment perceptions indicated significant differences at grades two, three, and five (see Table 9 and Figures 5-7). Cell means indicated that magnet schools with greater classroom-based influence outperformed all other magnet and traditional schools. Additionally, as successive grades were examined

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Insert Table 9 about here

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for the **lower** influence schools, the achievement advantage favoring magnet schools diminished to achievement parity with traditional schools by grade five. However, the achievement advantage for magnet schools with **greater** teacher influence remained similar across grades. Non-significant differences were found for levels of school-based decision-making influence and magnet-traditional schools.

Insert Figures 5, 6, & 7 about here

Reading achievement at grade five was found to differ significantly across magnet and traditional schools with higher and lower perceptions of positive school atmosphere (see Table 9 and Figures 8-10). Magnet schools with higher scores for positive school atmosphere outperformed all other schools by almost 9 months. Interestingly, magnet schools with lower perceptions of school atmosphere performed similar to both higher and lower traditional schools.

Insert Figures 8, 9, & 10 about here

Reading achievement differed across schools with higher and lower factor scores for collegiality (see Table 9 and Figure 11). Results indicate that, at grade one, those schools with greater collegiality have significantly higher reading achievement scores (approximately 3 months higher) than those with less perceived collegiality. No differences were found between magnet and traditional schools nor at grades two through five.

Insert Figure 11 about here

Mathematics achievement. Mathematics achievement was found to differ at grades two and five based on levels of teaching efficacy (see Table 9 and Figure 12). The results suggest that schools whose teachers perceive greater teaching efficacy achieve at a rate approximately three months greater than those whose teachers sense less teaching efficacy. Lastly, math achievement means at grade five were found to be significantly greater for those magnet schools with higher scores for school atmosphere (see Table 9 and Figure 13). These schools were found to outperform by almost eight months both higher traditional, lower traditional, and lower magnet school atmosphere schools.

Insert Figures 12 and 13 about here

SUMMARY AND IMPLICATIONS

The findings of the current study indicate that efficacy, empowerment, and instructional climate factors differ substantially across schools, levels and grades.

Most important, personal and teaching efficacy were found to be highly related, albeit inversely. School atmosphere was found to be significantly related to most context variables suggesting its importance as a potential alterable variable in school reform efforts. Efficacy was found to be strongly related to both classroom and school decision-making influence. Lastly, school atmosphere tended to be related to a lack of impediments to effective instruction and the collegiality of teachers.

In terms of teacher demographics, only educational attainment was found to be an important effect towards explaining personal efficacy and school atmosphere with less attainment being predictive of greater personal efficacy and perceptions of a more positive school atmosphere.

When two types of educational settings were examined, magnet and traditional schools, teaching efficacy and collegiality were found to differ with traditional school teachers reporting greater efficacy and collegiality.

The stability of sense of efficacy, an important theoretical proposition suggested by Rotter's (1966) conceptualization, was found to be statistically unchanged over a five month elapsed period of time for the staff of seven elementary schools. This finding contradicts that of Bandura (1977) which suggests that efficacy is situation-specific and likely to vary from setting and time.

Typically, elementary school teachers reported greater personal and teaching efficacy. In particular, middle and high school teachers respectively reported a lower sense of personal efficacy than did their elementary colleagues.

As expected, the differential contribution of context variables to achievement was found across levels, grades, and test content. Reading achievement appeared to be more susceptible to changes in empowerment and school atmosphere. Math achievement was found to differ by levels of teaching efficacy and collegiality.

Given the implications of the restructuring reform efforts currently being implemented across the nation, LEAs may wish to consider the relative effectiveness of efforts to improve teacher efficacy, empowerment, and instructional climate when multiple levels within districts are targeted. Providing teachers with greater decision-making authority, and enhancing collegiality, may well improve teacher work conditions and self-image but evidence that these efforts will improve achievement outcomes across the board may not be totally supported when grade levels, school levels, and test content vary. Furthermore, the magnet/traditional school dimension, a significant factor in many of the achievement findings, demands greater attention given differential perceptions of efficacy, empowerment, instructional climate, and achievement performance.

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Table 1

Factor Pattern Matrix of Rotated Oblique Factors Representing Efficacy

ITEM	*FACTOR* r_{12} = .40139	FACTOR I TEACHING EFFICACY	FACTOR II PERSONAL EFFICACY
Q15.	When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment.	.75850	
Q28.	If students are not disciplined at home, they aren't likely to accept any discipline at school.	.71399	
Q23.	What I can accomplish in the classroom depends on what parents do to motivate their children.	.70747	
Q29.	The hours spent in school have little influence on students compared to the influence of their home environment.	.69977	
Q31.	The amount that a student can learn is primarily related to family background.	.63277	
Q20.	When a student does better than usual, it is often because I have exerted a little extra effort.		.79701
Q16.	When my student's test scores improve, it is usually because I've found more effective teaching approaches.		.74119
Q24.	When students are having difficulty learning, I am usually able to adjust my teaching to their level.		.56815
Q30.	If I try really hard, I can get through to even the most difficult or unmotivated students.		.49622
Q19.	The influences of a student's home experiences can be overcome by good teaching.		.45706

Table 2

Factor Pattern Matrix of Rotated Oblique Factors Representing Empowerment

ITEM	*FACTOR* r_{12} = .44936	FACTOR I SCHOOL DECISIONS	FACTOR II CLASS DECISIONS
Q59.	Influence in decisions about evaluating the performance of full-time teachers.	.77141	
Q53.	Influence in decisions about the time of faculty meetings.	.74127	
Q57.	Influence in decisions about the content of faculty meetings	.67393	
Q55.	Influence in decisions about managing the funds available for instructional purposes.	.63265	
Q54.	Influence in decisions about assignments for teacher duties outside of classrooms.	.59358	
Q52.	Influence in decisions about instructional methods that are used in the classroom.		.79479
Q58.	Influence in decisions about ways of reporting student progress to parents.		.75696
Q60.	Influence in decisions about initiating special or innovative projects.		.61310
Q56.	Influence in decisions about standards of pupil behavior.		.56624

Table 3

Factor Pattern Matrix of Rotated Oblique Factors Representing the Instructional Climate of the School

ITEM	*FACTOR r_{23} = .18019* *FACTOR r_{13} = .38246* *FACTOR r_{12} = .21668*	FACTOR I SCHOOL ATMOSPHERE	FACTOR II ABSENCE OF IMPEDIMENTS	FACTOR III COLLEGIALITY
Q17. This school is organized effectively to achieve its goals.		.87579		
Q41. A positive feeling generally permeates my school.		.74188		
Q42. The school atmosphere is generally very conducive to learning for all students.		.71647		
Q27. This school provides a physically attractive environment.		.69855		
Q43. The principal is an important instructional resource in my school.		.69273		
Q49. My school has an effective program to maintain a high level of student attendance.		.57566		
Q8. Most teachers in this school are cooperative and work well together.		.53695	-.43614	
Q40. Instructional issues are often the focus of faculty meetings.		.49785		
Q48. Fewer than five minutes per hour of instructional time is lost as a result of discipline problems.			.67179	
Q44. Discipline is a problem in my school.		.50310	.51909	
Q46. Teachers in my school informally discuss instructional issues.				.85828
Q50. Teachers in my school share effective ways to engage students in learning.				.74405
Q47. Fewer than five minutes per hour of instructional time is lost as a result of announcements, and/or organizational activities.			.47127	.46027

Table 4

Zero-Order Correlations Among Context Variables: Efficacy, Empowerment, and Instructional Climate

Level of Aggregation	Teaching Efficacy	Personal Efficacy	School Influence	Classroom Influence	School Atmosphere	Lack of Impediments	Collegiality
Context Variable							
Teaching Efficacy							
All cases [a]	1.0	-.40**	-.03	.11**	.08**	.01	.17**
High Schl Tchrs [b]	1.0	-.47**	-.12*	.12*	-.05	.07	.20**
Middle Schl Tchrs [c]	1.0	-.60**	.05	.05	.12*	.06	.05
Elem Schl Tchrs [d]	1.0	-.37**	-.02	.14**	.11**	.01	.19**
Personal Efficacy							
All cases		1.0	.12**	.04	.20**	.02	.04
High Schl Tchrs		1.0	.15**	.04	.29**	.008	.05
Middle Schl Tchrs		1.0	.04	.02	.11	.07	.07
Elem Schl Tchrs		1.0	.13**	.04	.14**	.06	.07
School Decision-Making Influence							
All cases			1.0	-.45**	.28**	.01	.06*
High Schl Tchrs			1.0	-.50**	.26**	-.005	.04
Middle Schl Tchrs			1.0	-.54**	.25**	.02	.05
Elem Schl Tchrs			1.0	-.41**	.25**	.02	.07
Classroom Decision-Making Influence							
All cases				1.0	.08**	.08**	.03
High Schl Tchrs				1.0	-.004	.06	.08
Middle Schl Tchrs				1.0	.11	.05	-.08
Elem Schl Tchrs				1.0	.09**	.11**	.02

Table 4 (continued)

Zero-Order Correlations Among Context Variables: Efficacy, Empowerment, and Instructional Climate

Level of Aggregation	Teaching Efficacy	Personal Efficacy	School Influence	Classroom Influence	School Atmosphere	Lack of Impediments	Collegiality
Context Variable							
School Atmosphere							
All cases					1.0	.36**	.16**
High Schl Tchrs					1.0	.40**	.15**
Middle Schl Tchrs					1.0	.43**	.15**
Elem Schl Tchrs					1.0	.33**	.21**
Lack of Impediments to Effective Learning							
All cases						1.0	-.11**
High Schl Tchrs						1.0	-.09
Middle Schl Tchrs						1.0	-.13*
Elem Schl Tchrs						1.0	-.09*
Collegiality							
All cases							1.0
High Schl Tchrs							1.0
Middle Schl Tchrs							1.0
Elem Schl Tchrs							1.0

Note: [a] Based on 1,802 teachers; [b] Based on 413 high school teachers; [c] Based on 337 middle school teachers; [c] Based on 855 elementary school teachers. One hundred ninety-seven cases not disaggregated due to varying assignments in special schools.

Table 5

Summary of Multivariate Analysis of Covariance Results for Effects of Teacher Demographic Variables on Context Variables

EFFECT TERM	HOTELLINGS T	F	SIGNIF
FOUR-WAY INTERACTION			
SEX x LEVEL x TEXP x EDBACK	$T_{98,9802}$=.05919	.84569	.862
THREE-WAY INTERACTIONS			
LEVEL x TEXP x EDBACK	$T_{245,9802}$=.18503	1.0574	.259
SEX x TEXP x EDBACK	$T_{84,9802}$=.05398	.89992	.732
SEX x LEVEL x EDBACK	$T_{77,9802}$=.05324	.96822	.558
SEX x LEVEL x TEXP	$T_{98,9802}$=.06158	.87991	.795
TWO-WAY INTERACTIONS			
TEXP x EDBACK	$T_{105,9802}$=.06320	.84278	.876
LEVEL x EDBACK	$T_{112,9802}$=.08374	1.04695	.349
LEVEL x TEXP	$T_{112,9802}$=.08352	1.04417	.357
SEX x EDBACK	$T_{28,5602}$=.01833	.91660	.591
SEX x TEXP	$T_{28,5602}$=.01160	.58011	.962
SEX x LEVEL	$T_{28,5602}$=.01563	.78199	.786
MAIN EFFECTS			
EDBACK	$T_{28,5602}$=.03453	1.72708	.010*
TEXP	$T_{28,5602}$=.01174	.58709	.959
LEVEL	$T_{28,5602}$=.02618	1.30932	.127
SEX	$T_{7,1402}$=.00222	.44458	.874

Table 6

Univariate F-Tests and Means for Significant Multivariate Main Effect of Educational Background

CONTEXT VARIABLE	HYP MS	ERROR MS	F	SIGNIF
EFFICACY				
Teaching Efficacy (TEFF1)	102.59	112.56	.912	.456
Personal Efficacy (TEFF2)	330.23	102.28	3.23	.012*
DECISION-MAKING INFLUENCE				
School Influence (TINFL1)	78.41	114.70	.684	.603
Classroom Influence (TINLF2)	140.91	119.11	1.183	.316
INSTRUCTIONAL CLIMATE				
School Atmosphere (TCLIM1)	259.64	99.56	2.610	.034*
Lack of Impediments (TCLIM2)	276.48	117.41	2.355	.052
Collegiality (TCLIM3)	48.34	103.29	.468	.759

Adjusted Means for Significant Univariate F-Tests Based on Educational Attainment (EDBACK)

EDBACK	N	Personal Efficacy TEFF2	Positive School Atmosphere TCLIM1
Less than Bachelors	15	52.79	53.89
Bachelors	800	50.27	50.08
Masters	452	50.49	50.13
Masters plus 15 hours	153	50.33	51.45
Greater than MA+15	355	49.09	48.82

Table 7

Summary of Analysis of Covariance Significant Effects and Adjusted Means for Magnet and Traditional School Teachers

CONTEXT VARIABLE	SS	MS	F	SIGNIF
EFFICACY				
Teaching Efficacy (TEFF1)	493.44	493.44	4.201	.041*
Personal Efficacy (TEFF2)	149.92	149.92	1.291	.256
DECISION-MAKING INFLUENCE				
School Influence (TINFL1)	15.55	15.55	.125	.724
Classroom Influence (TINLF2)	399.93	399.93	3.22	.073
INSTRUCTIONAL CLIMATE				
School Atmosphere (TCLIM1)	8.26	8.26	.077	.781
Lack of Impediments (TCLIM2)	2.851	2.851	.024	.877
Collegiality (TCLIM3)	897.60	897.60	.8.55	.003*

Adjusted Means for Significant ANCOVA Results Based on Teacher Assignment to Magnet or Traditional School Setting (MAGTRAD)

MAGTRAD	N	Teaching Efficacy TEFF1	Collegiality TCLIM3
Traditional School Teachers	475	50.91	51.22
Magnet School Teachers	1308	49.71	49.60

Note: Traditional school teachers teach in non-magnet elementary schools.

Table 8

Stability of Sense of Teaching and Personal Efficacy for School Staff Members Across Time

Efficacy School	Change N	Spring 90-91 Mean	(s)	Fall 91-92 Mean	(s)	Change Spr/Fall
Teaching Efficacy						
A	+1	46.28	10.4	52.935	12.8	+6.65
B	0	50.77	9.8	52.32	11.9	+1.55
C	0	54.06	9.02	50.21	9.37	-3.81
D	+1	46.23	11.7	45.61	10.1	-0.62
E	-1	51.37	8.59	52.42	10.8	+1.05
F	+3	50.08	12.0	49.72	8.35	-0.36
G	-2	50.86	11.1	48.44	7.45	-2.42
Overall Change						+2.06
Personal Efficacy						
A	+1	58.59	5.75	53.84	7.77	-4.75
B	0	52.68	9.0	51.26	10.8	-1.42
C	0	52.29	9.46	46.43	14.3	-5.86
D	+1	51.35	14.6	45.89	7.80	-5.47
E	-1	58.70	7.69	48.06	10.6	-10.6
F	+3	54.61	10.9	53.93	7.30	-0.68
G	-2	48.71	10.6	51.51	11.0	+2.80
Overall Change						-25.98

Table 9

Summary of Multivariate Analyses of Covariance Effects and Adjusted Means for Reading Achievement

Significant Main Effect	T	DF	F	Sig
Test Content				
Significant Interaction				
Reading				
Classroom Influence x Magnet/Traditional	.665	5/22	2.92	.036
School Atmosphere x Magnet/Traditional	.627	5/22	2.76	.044
Magnet/Traditional	.641	5/22	2.82	.041
School Atmosphere	.813	5/22	3.58	.016
Collegiality	.522	5/22	3.29	.050
Mathematics				
Teaching Efficacy	.758	5/22	3.34	.022
School Atmosphere x Magnet/Traditional	.676	5/22	2.97	.034

Figure 1.

Teacher report of sense of efficacy

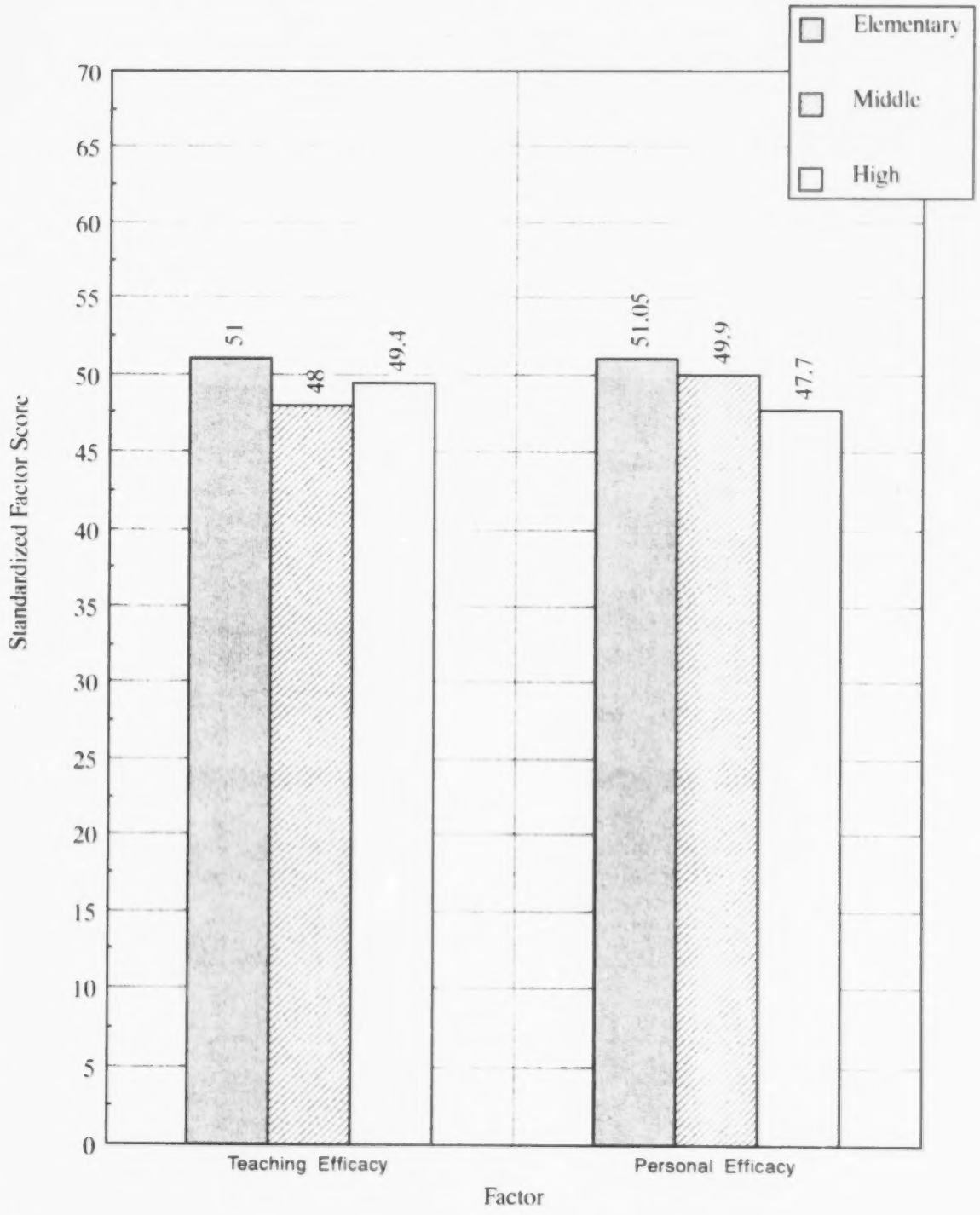

Figure 2.

Teacher report of influence in decision-making

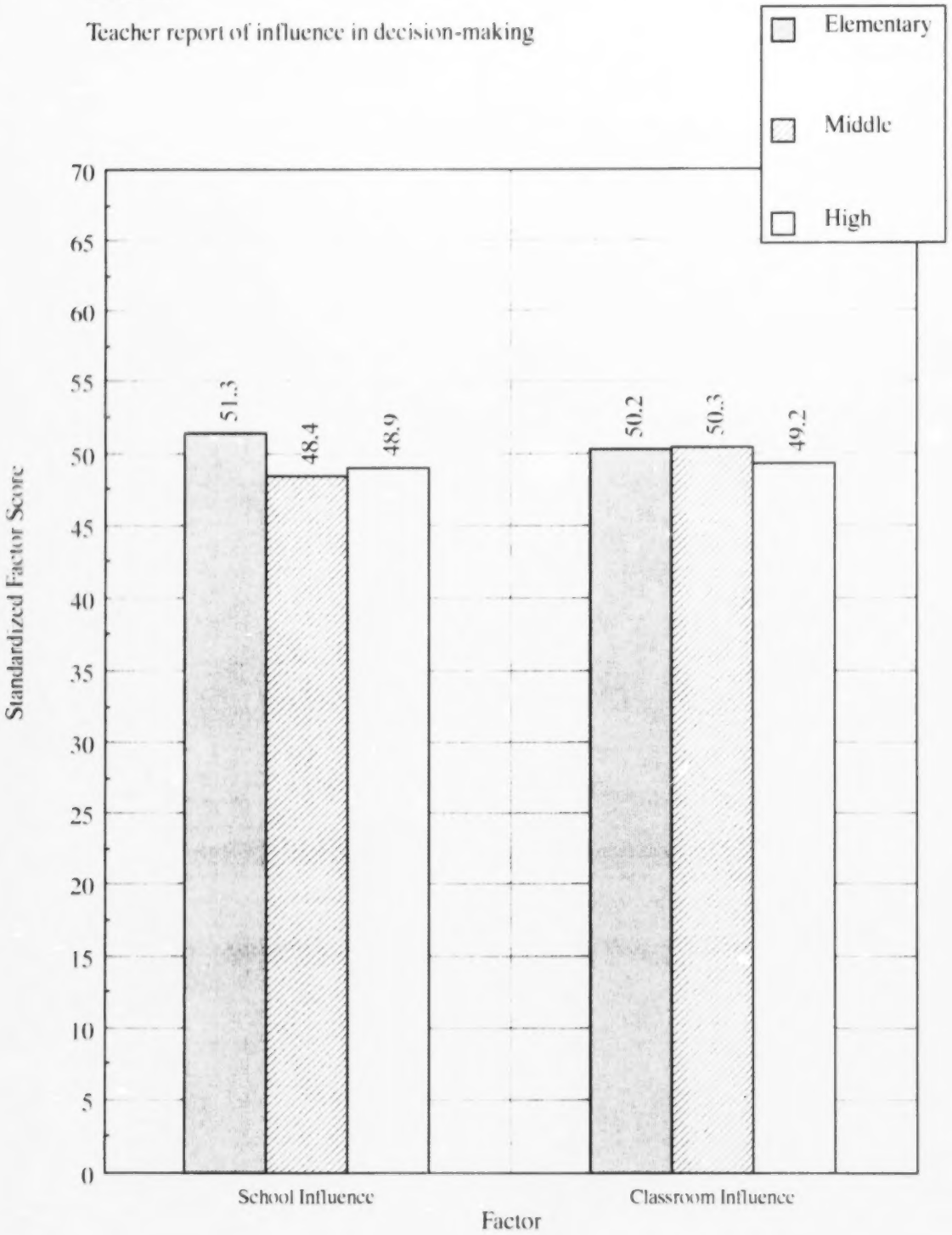

Figure 3.

Teacher report of instructional climate

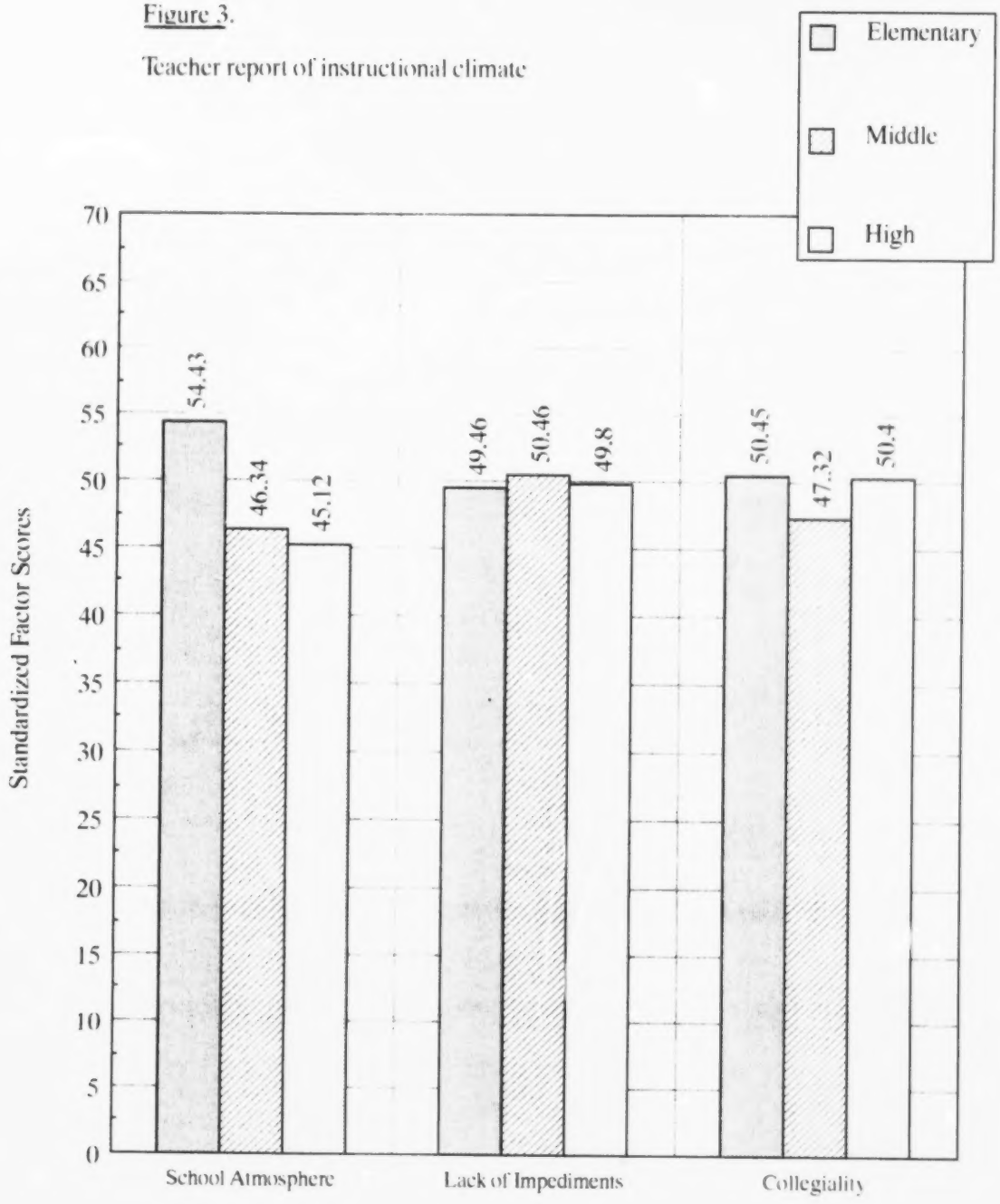

Figure 4.

Teacher report of efficacy, empowerment, and school climate by school type

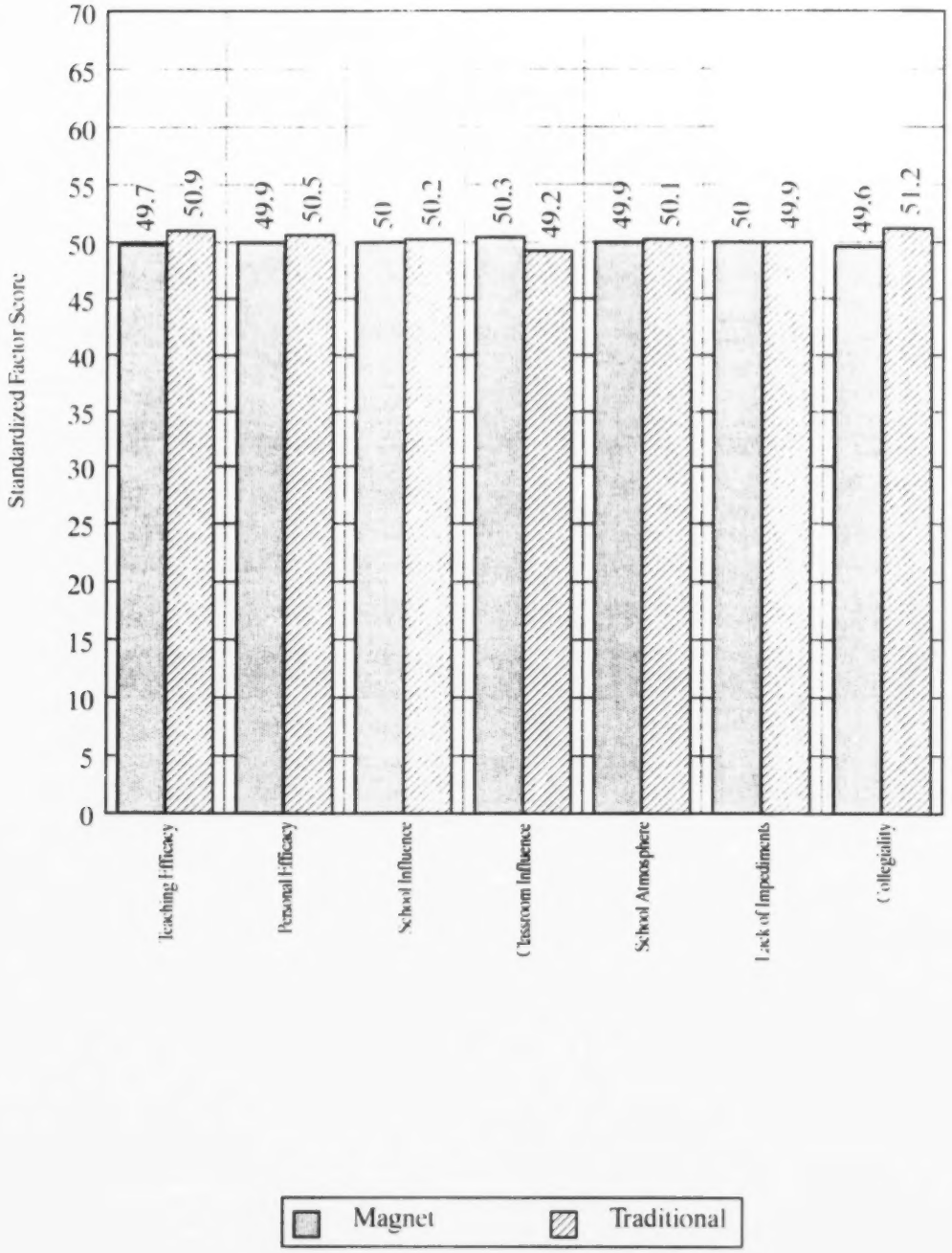

Figure 5.

Reading achievement and classroom decision-making Influence by school type: Grade two

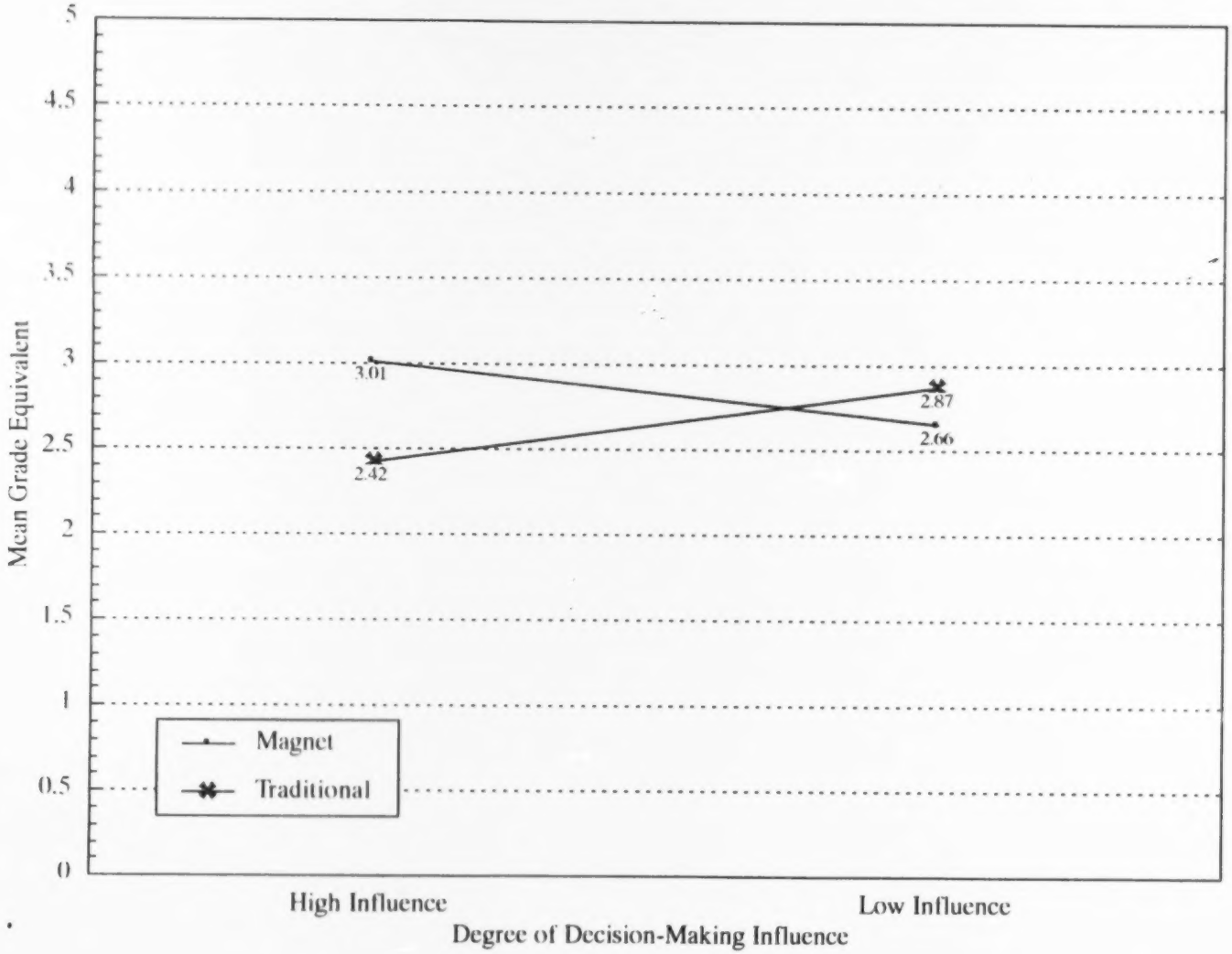

Figure 6.

Reading achievement and classroom decision-making Influence by school type: Grade three

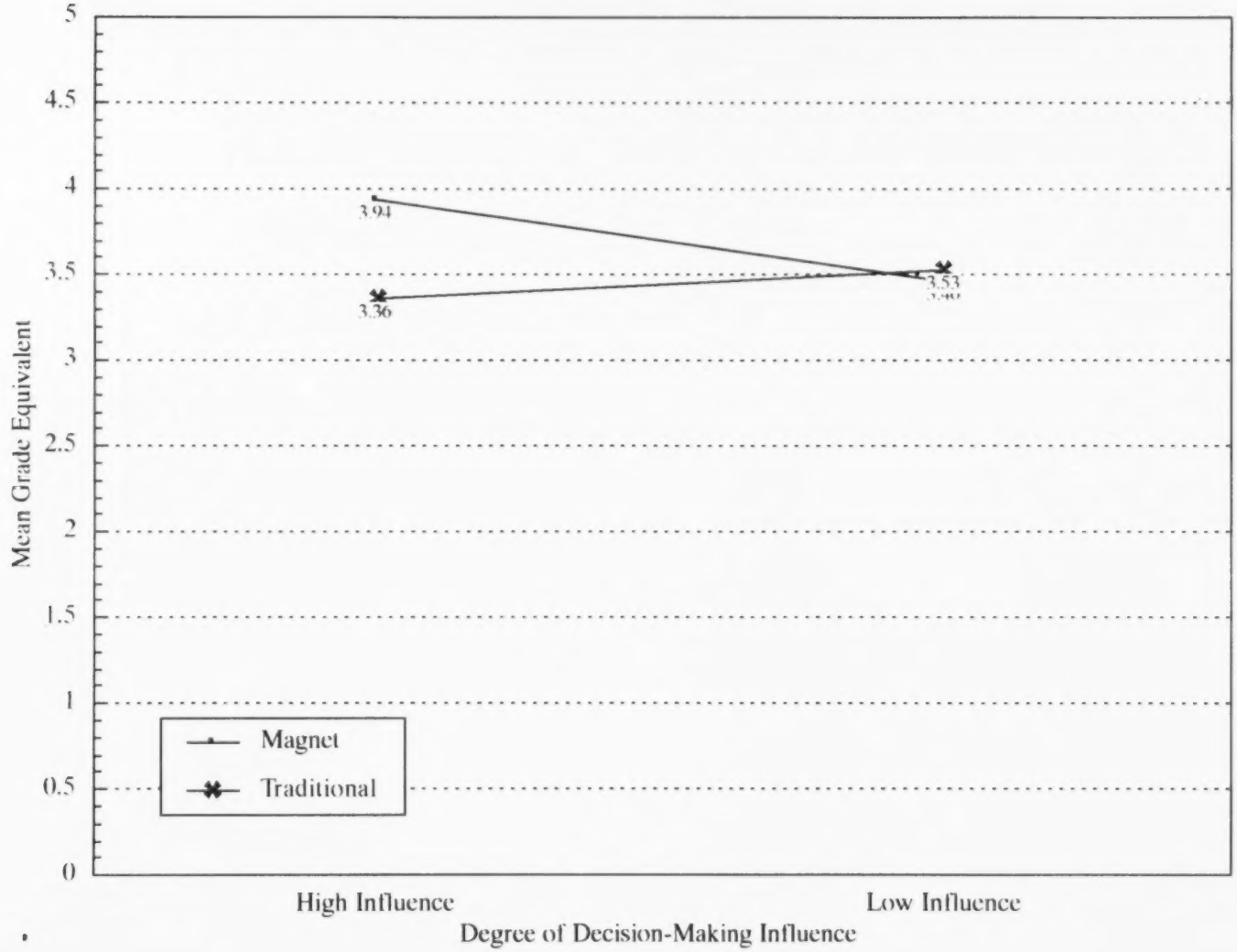

Figure 7.

Reading achievement and classroom decision-making Influence by school type: Grade five

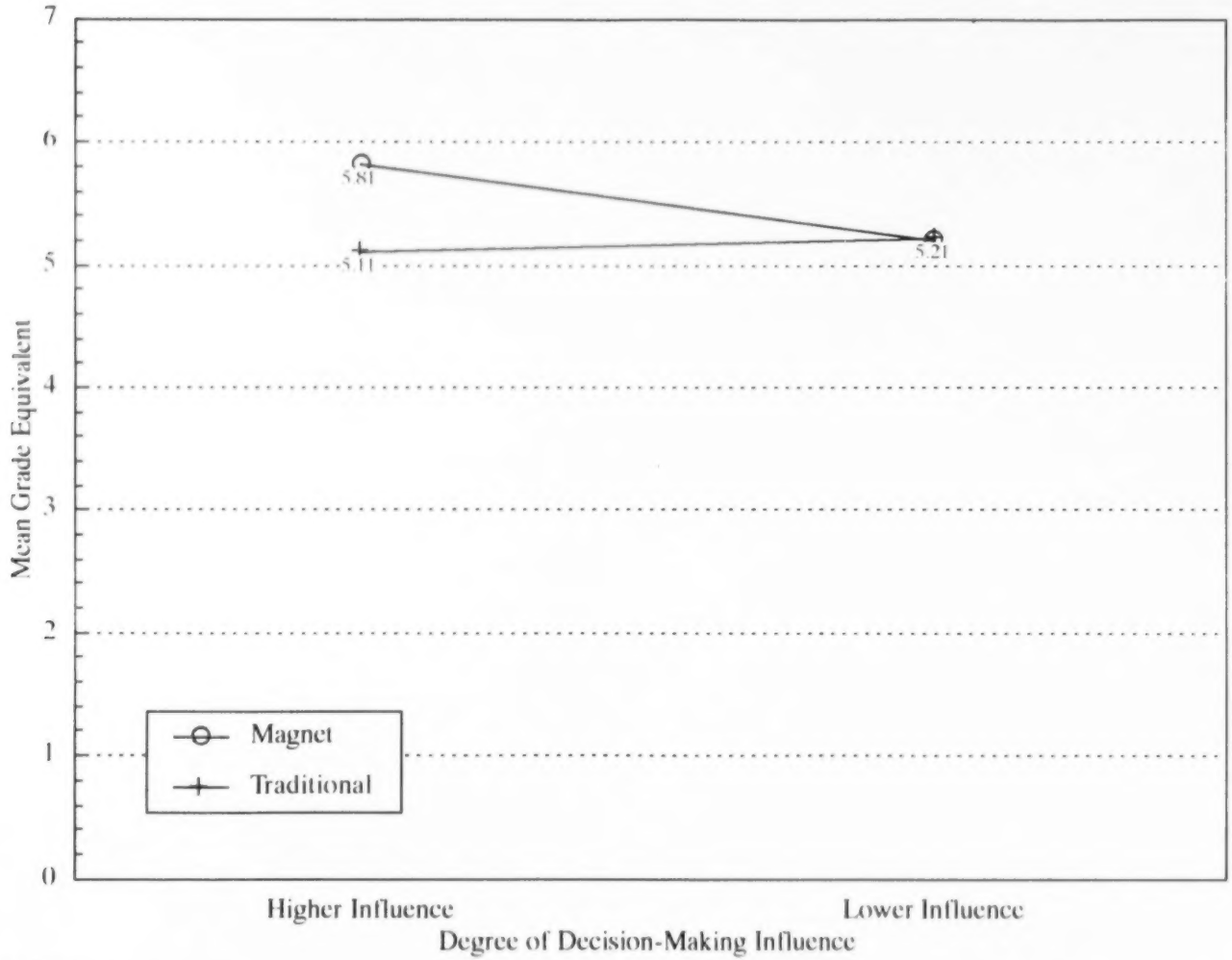

Figure 8.

Reading achievement and school atmosphere by school type: Grade five

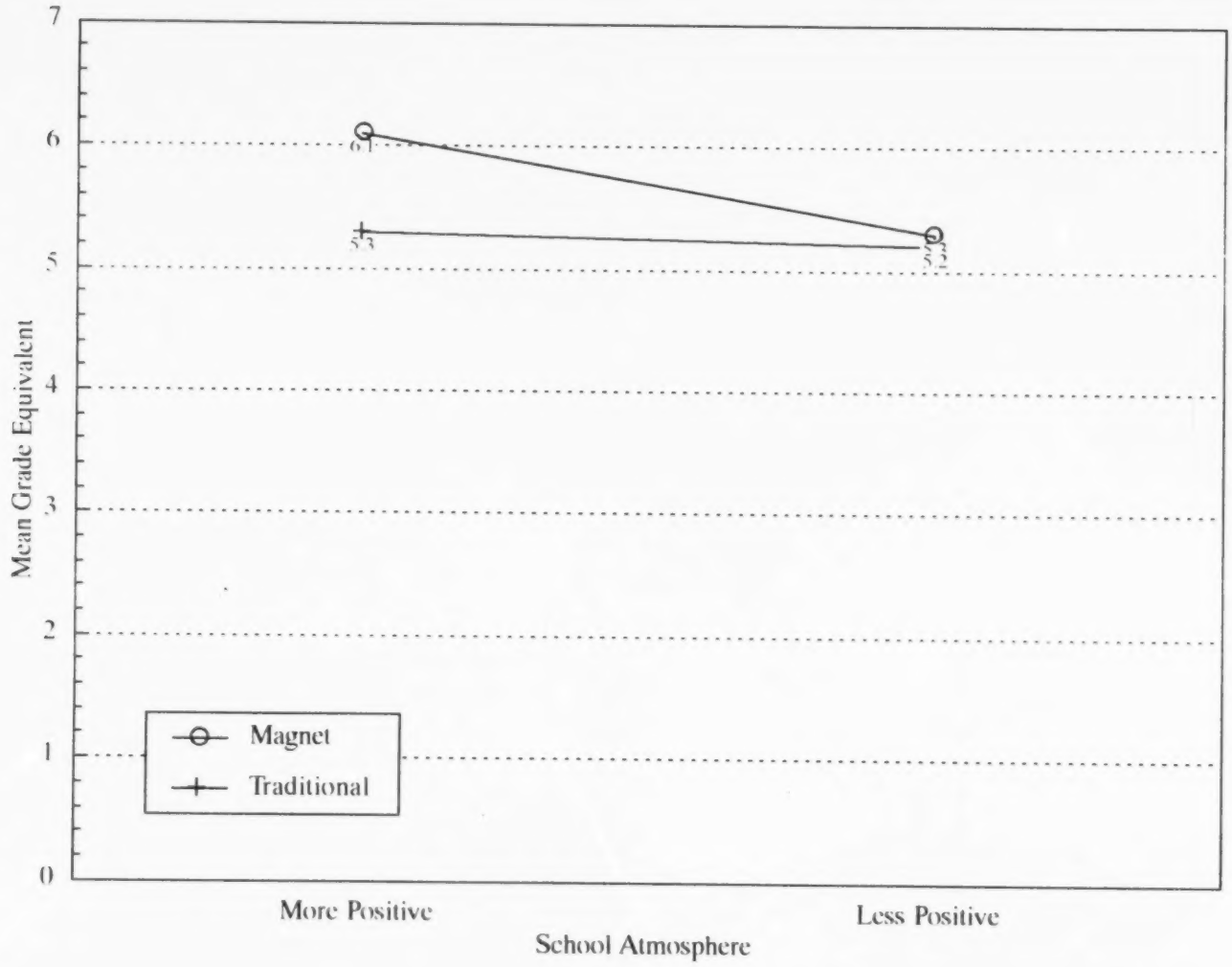

Figure 9.

Reading achievement and school atmosphere by school type and grade

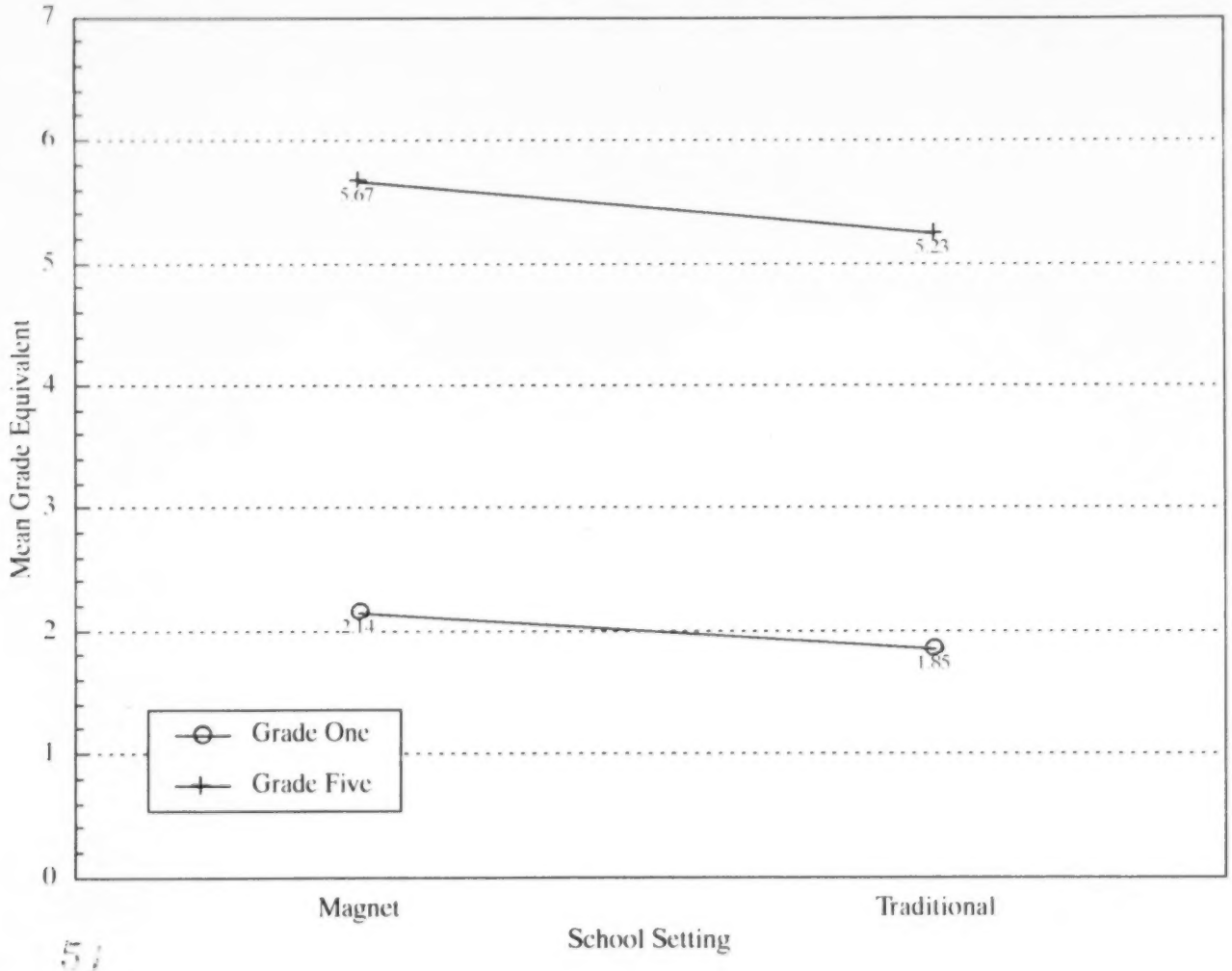

Figure 10.

Reading achievement by school atmosphere and grade

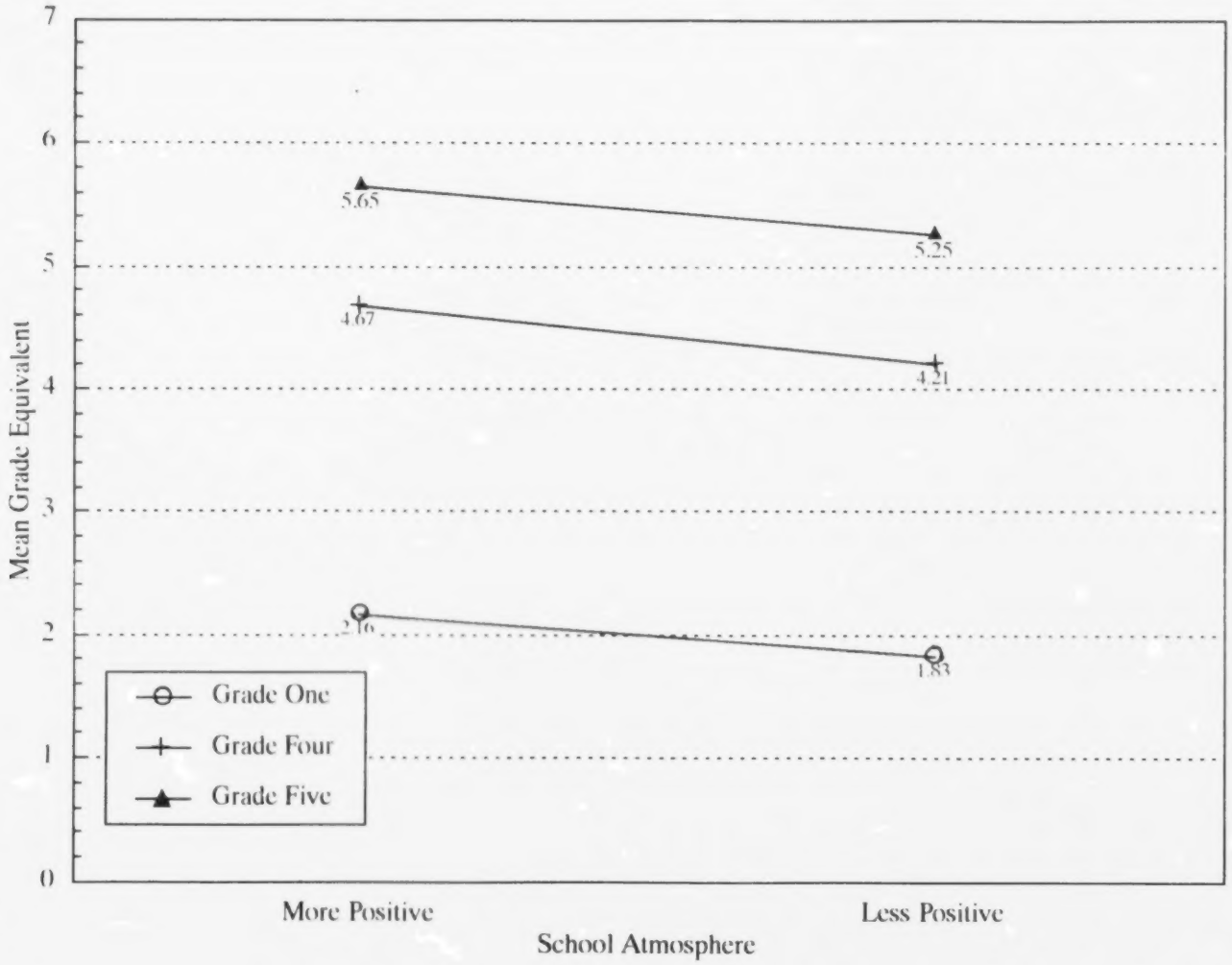

Figure 11.

Reading achievement by degree of collegiality: Grade one

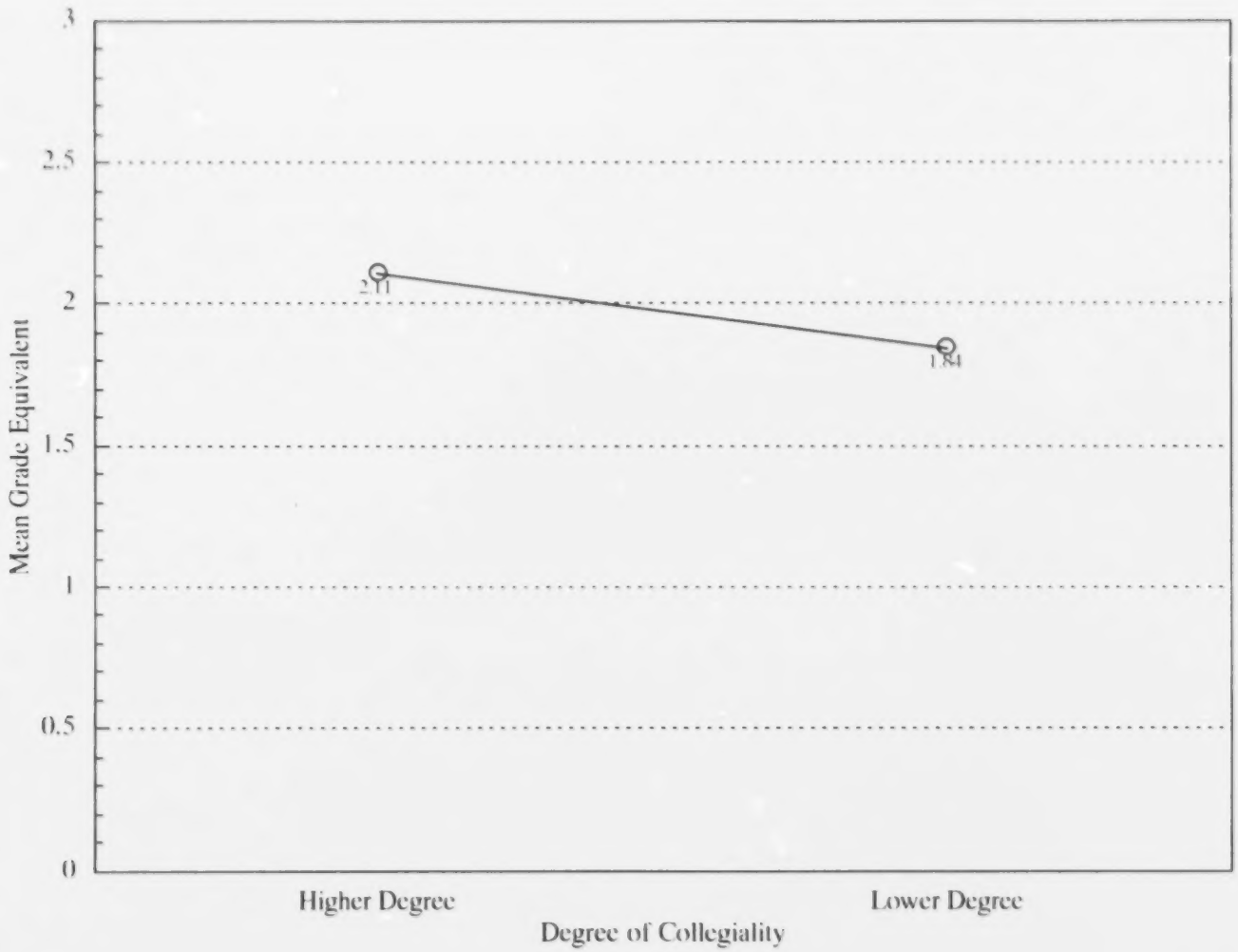

Figure 12.

Math achievement and sense of teaching efficacy: Grades two and five

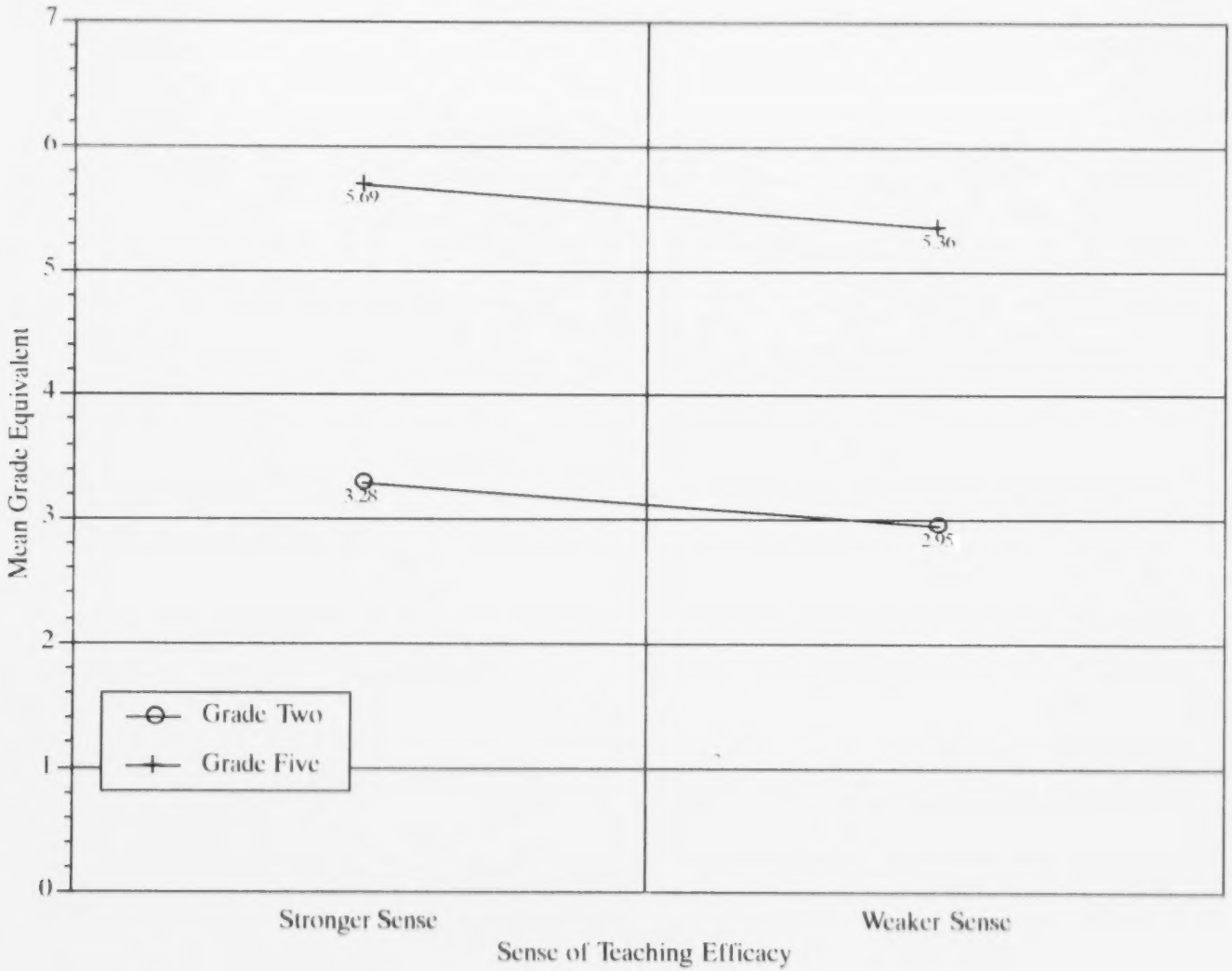

Figure 13.

Math achievement and school atmosphere: Grade five